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Abstract of the Disclosure

A method of fabricating a semiconductor device includes depositing a dielectric film and subjecting the dielectric film to a wet oxidation in a rapid thermal process chamber. The technique can be used, for example, in the formation of various elements in an integrated circuit, including gate dielectric films as well as capacitive elements. The tight temperature control provided by the RTP process allows the wet oxidation to be performed quickly so that the oxidizing species does not diffuse significantly through the dielectric film and diffuse into an underlying layer. In the case of capacitive elements, the technique also can help reduce the leakage current of the dielectric film without significantly reducing its capacitance.

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